

# **Figure 1** **Sequence of human APRIL (SEQ ID NOS: 1 and 2)**

## **Human G70 cDNA (SEQ ID NO 1)**

Length: 1465 bp

```

1  GCCAACCTTC  CCTCCCCCAA  CCTCGGGGCC  GCCCCAGGGT  TCCTGCGCAC
51  TGCCCTGTTCC  TCCTGGGTGT  CACTGGCAGC  CCTGTCCTTC  CTAGAGGGAC
101  TGGAACCTAA  TTCTCCTGAG  GCTGAGGGAG  GGTGGAGGGT  CTCAAAGCAA
151  CGCTGGCCCC  ACGACGGAGT  GCCAGGAGCA  CTAACAGTAC  CCTTAGCTTG
201  CTTCTCCTCT  CCTCCTTTT  TATTTTCAAG  TTCTTTTATA  TTCTCTCTTG
251  CGTAACACAC  TTCTTCCCTT  CTGCACCACT  GCCCGTACCC  TTACCCGCCC
301  CGCCACCTCC  TTGTACCCCC  ACTCTTGAAA  CCACAGCTGT  TGGCAGGGTC
351  CGACGCTCAT  GCCAGCCTCA  TCTCCTTTCT  TGCTAGCCCC  CAAAGGGCCT
401  CCAGGCTACA  TGGGGGGCCC  AGTCAGAGAG  CCGGCACCTC  CAGTTGCCCT
451  CTGGTTGAGT  TGGGGGSCAG  CTCCTGGGGC  CGTGGCTTGT  GCCATGGCTC
501  TGCTGACCCA  ACAACACAG  CTGCAGAGCC  TCAGAGAGAG  GGTGAGCCGG
551  CTGCAGGGGA  CAGGAGGCC  CTCCAGAAAT  GGAAGCCTGG  GAGAGTGGG
601  GAGTCTCCCG  GAGCAGAGTT  CCGATGCCCT  GCACTGCTCA  CCCAAAACA  GAAGAAGCAG
651  AGAGATCCCG  GAAAAGGAGA  GCACTGCTCA  CCCAAAACA  GAAGAAGCAG
701  CACTCTGTCC  TGCACCTGGT  TCCCATTAAC  GCCACCTCCA  AGGATGACTC
751  CGATGTGACA  GAGGTGATGT  GGCAACCAGC  TCTTAGGCGT  GGGAGAGCCC
801  TACAGGCCCA  AGGATATGGT  GTCCGAATCC  AGGATGCTGG  AGTTTATCTG
851  CTGTATAGCC  AGGTCTTGTT  TCAAAGACGT  ACTTTCACCA  TGGGTGAGT
901  GGTGTCTCGA  GAAGGCCAAG  GAAGGCAGGA  GACTCTATTC  CGATGTATAA
951  GAAGTATGCC  CTCGCCCCG  GACCGGGCCT  ACAACAGCTG  CTATAGCGCA
1001  GGTGTCTTCC  ATTTACACCA  AGGGGATATT  CTGAGTGTCA  TAATTGCCCG
1051  GGCAAGGGCG  AAACCTTAAC  TCTCTCCACA  TGGAACCTTC  CTGGGGTTTG
1101  TGAAACTGTG  ATTGTGTTAT  AAAAAGTGGC  TCCACGCTTG  GAAGACCAAG
1151  GTGGGTACAT  ACTGGAGACA  GCCAAGAGCT  GAGTATATAA  AGGAGAGGGA
1201  ATGTGCAGGA  ACAGAGGCGT  CTTCTGGGT  TTGGCTCCCC  TTCTCTCACT
1251  TTTCCTTTT  CATTCCCAAC  CCTAGACTT  TGATTTTACG  GATATCTTGC
1301  TTCTGTTCCC  CATGGAGCTC  CGAATTCTTG  CGTGTGTGTA  GATGAGGGGC
1351  GGGGGACGGG  CGCCAGGCAT  TGTTCAGACC  TGGTCGGGG  CCACTGGAAG
1401  CATCCAGAAC  AGCACCACCA  TCTAACGGCC  GCTCGAGGGA  AGCACCCTGG
1451  GGTTTGGGCG  AAGTC

```

The proposed transmembrane domains are boxed

## **human G70 protein sequence (SEQ ID NO 2)**

```

1  MPASSPFLLA  PKGPPGNMGG  FVREPALSVA  LWSLWGAALG  AVACAMALLT
51  QQTELQSLRR  EVSRLQGTGG  PSQNGEGYPW  QSLPEQSSDA  LEAWESGERS
101  RRRRAVLTK  QKKQHSVLHL  VPINATSKDD  SDVTEVMWQP  ALRRRGLQA
151  QYGVRIQDA  GVYLLYSQVL  FQDVTFTMGQ  VVSREGQGRQ  ETLPRCIRSM
201  PSHPDRAVNS  CYSAGVFHLH  QGDILSVIIP  RARAKLNLSF  HGTFLGFVKL

```

0055156.051401

# **Figure 2A** **Sequence of mouse G70 (SEQ ID NOS: 3 and 4)**

Mouse G70 (SEQ ID NO 3)

```

1  CATGCCGAGT GCTTTGTGTG TGTACCTGC TCTAAGAAGC TGGCTGGGCA
51  GCGTTTCACC GCTGTGGAGG ACCAGTATTA CTGCGTGGAT TGCTACAAGA
101 ACTTTGTGGC CAAGAAGTGT GCTGGATGCA AGAACCCCAT CACTGGGTTT
151 GGTAAAGGCT CCAGTGTGGT GGCCTATGAA GGACAATCCT GGCACGACTA
201 CTGCTTCACG TGCAAAAAAT GCTCCGTGAA TCTGGCCAAC AAGCGCTTTG
251 TATTTTCATA TGAGCAGGTG TATTGCCCTG ACTGTGCCAA AAAGCTGTAA
301 CTTGACGGCT GCCCTGTCCT TCCTAGATAA TGGCACCAAA TTCTCCTGAG
351 GCTAGGGGGG AAGGAGTGTC AGAGTGTCAC TAGCTCGACC CTGGGGACAA
401 GGGGGACTAA TAGTACCCTA GCTTGATTTC TTCTTATTCT CAAGTTCCTT
451 TTTATTTCTC CCTTGCCTAA CCCGCTCTTC CCTTCTGTGC CTTTGCCTGT
501 ATTCCCACCC TCCCTGCTAC CTCTTGGCCA CTCCTCTCT GAGACCACAG
551 CTGTTGGCAG GGTCCCTAGC TCATGCCAGC CTCATCTCCA GGCCACATGG
601 GGGGCTCAGT CAGAGAGCCA GCCCTPTCGG TTGCTCTTTG GTTGAGTTGG
651 GGGGCAGTTC TGGGGGCTGT GACTTGTGCT GTCGCACTAC TGATCCAACA
701 GACAGAGCTG CAAAGCCTAA GGCGGGAGGT GAGCCGGCTG CAGCGGAGTG
751 GAGGGCCTTC CCAGAAGCAG GGAGAGCGCC CATGGCAGAG CCTCTGGGAG
801 CAGAGTCCTG ATGTCCTGGA AGCCTGGAAG GATGGGGCGA AATCTCGGAG
851 AAGGAGAGCA GTACTCACCC AGAAGCACAA GAAGAAGCAC TCAGTCTCTG
901 ATCTTGTGCC AGTTAACATT ACCTCCAAGG ACTCTGACGT GACAGAGGTG
951 ATGTGGCAAC CAGTACTTAG GCGTGGGAGA GGCTTGGAGG CCCAGGGAGA
1001 CATTGTACGA GTCTGGGACA CTGGAATTTA TCTGCTCTAT AGTCAGGTCC
1051 TGTTCATGTA TGTGACTTTC ACAATGGGTC AGGTGGTATC TCGGAAGGAA
1101 CAAGGGAGAA GAGAACTCTT ATTCGGATGT ATCAGAAGTA TGCCTTCTGA
1151 TCCTGACCGT GCCTACAATA GCTGCTACAG TGCAGGTGTC TTTCATTATC
1201 ATCAAGGGGA TATTATCACT GTCAAAATTC CACGGGCAAA CGCAAAACTT
1251 AGCCTTTCTC CGCATGGAAC ATTCCTGGGG TTTGTGAAC TATGATTGTT
1301 ATAAAGGGGG TGGGATTTC CCATTCCAAA AACTGGCTAG ACAAGGACA
1351 AGGAACGGTC AAGAACAGCT CTCCATGGCT TTGCTTGTAC TGTGTTTCCT
1401 CCCTTTGCTT TTCCCGCTCC CACTATCTGG GCTTTGACTC CATGATATT
1451 AAAAAAGTAG AATATTTTGT GTTTATCTCC CAAAAA

```

0955156.051401

## Figure 2B

Mouse G70 Length: 241 (SEQ ID NO 4)

```
1  MPASSPGHMG GSVREPALSV ALWLSWGAVL GAVTCAVALL IQQTELQSLR
51  REVSRLQRRG GPSQKQGERP WQSLWEQSPD VLEAWKDGA SRRRRAVLTQ
101 KKKKKHSLVH EVPVNITSKD SDVTEVMWQP VLRRGRGLEA QGDIVRVWDT
151 GIYLLYSQVL FHDVFTMGQ VVSREGQGRR ETLFR CIRSM PSDPD RAYNS
201 CYSAGVFHLH QGDIITVKIP RANAKLSLSP HGTFLGFVKL *
```

G-70 FLAG des92 (smuG70) Strain #4081 (SEQ ID NO 19):

```
MDYKDDDDKKKKKHSVLHLVPVNITSKDSDVTEVMWQPVLLRRGRGLEAQGDIVRVW
DTGIYLLYSQVLFHDVFTMGQVVSREGQGRRETLFR CIRSMPSDPDRAYNSCYSAG
VFHLHQGDIITVKIPRANAKLSLSPHGTFLGFVKL*
```

005130.051401

**Figure 3**  
**Alignm. of human and mouse G70**

```

mouse: 1  MPASS-----PGHMGGSVREPALSVALWLSWGAVLGAVTCAVALLTQQTELQSLRR 51
          MPASS          PG+MGG VREPALSVALWLSWGA LGAV CA+ALLTQQTELQSLRR
Human: 1  MPASSPFLAPKGP PPGNMGGFVREPALSVALWLSWGAALGAVACAMALLTQQTELQSLRR 60

mouse: 52 EVSRLQRSGGPSQKQGERPWQSLWEQSPDVLEAWKDGAKSRRRRAVLTKHKKKHSVLHL 111
          EVSRLQ +GGPSQ      PWQSL EQS D LEAW+ G +SR+RRAVLTQK KK+HSVLHL
human: 61 EVSRLQGTGGPSQNGEGYPWQSLPEQSSDALEAWESGERSRKRRAVLTKQKKQHSLHL 120

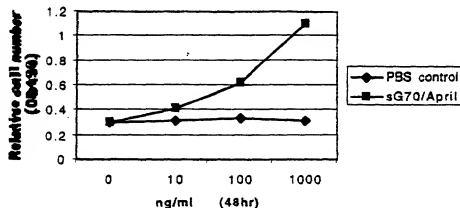
mouse: 112 VPVNITSKD-SDVTEVMWQPVLRRGRGLEAQGDIVRVWDTGIYLLYSQVLFHDVTFMTGQ 170
          VP+N TSKD SDVTEVMWQP LRRGRGL+AQG VR+ D G+YLLYSQVLF DVTFTMGQ
human: 121 VPINATSKDSDVTEVMWQPALRRGRGLQAQGYGVRIQDAGVYLLYSQVLFQDVTFTMGQ 180

mouse: 171 VVSREGQGRRETLFRCIRSMPSDPDRAYNSCYSAGVFHLHQGDIITVKIPRANAKLSLSP 230
          VVSREGQGR+ETLFRFCIRSMPS PDRAYNSCYSAGVFHLHQGDI++V IPRA AKL+LSP
human: 181 VVSREGQGRQETLFRFCIRSMPSHPDRAYNSCYSAGVFHLHQGDILSVIIPRARA KNLSP 240

mouse: 231 HGTFLLGFVKL 240
          HGTFLLGFVKL
human: 241 HGTFLLGFVKL 250

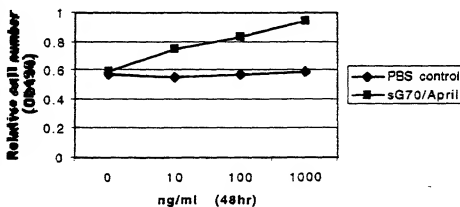
```

**Effect of sG70/April on Raji cell proliferation**



**Fig. 4A**

**Effect of sG70/April on Jurkat cell proliferation**



**Effect of sG70/April on K562 cell proliferation**

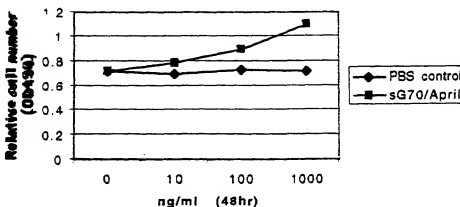


Fig. 4B

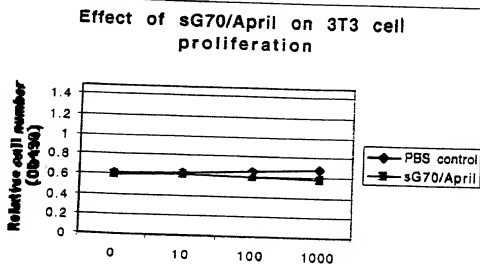
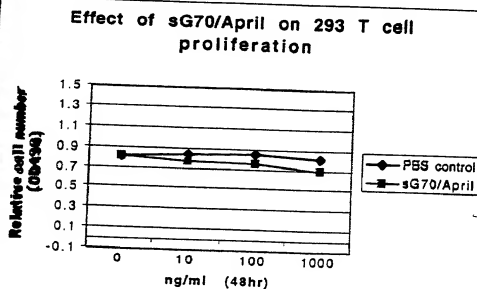
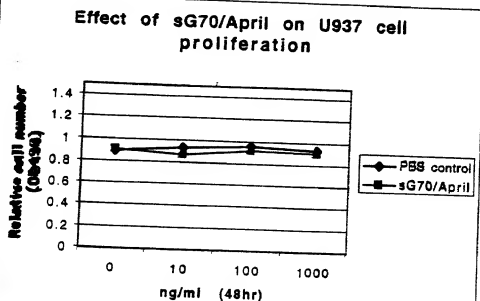
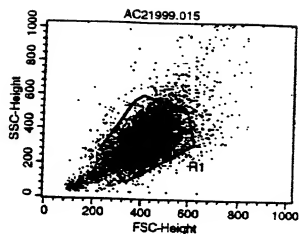
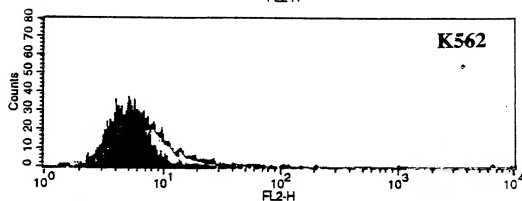
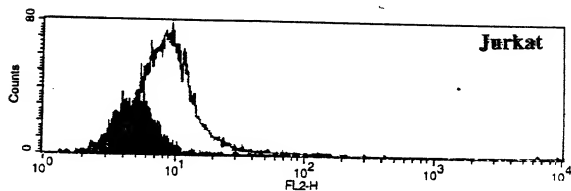
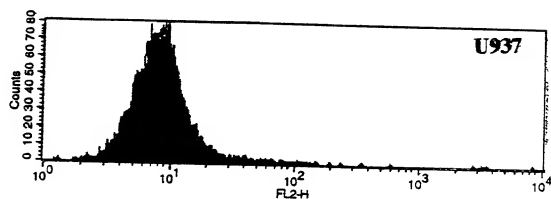


FIGURE 5A

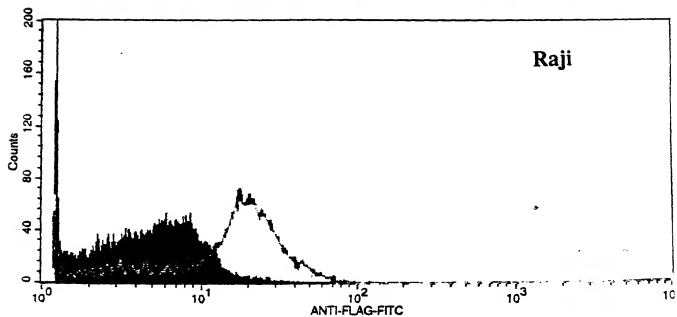
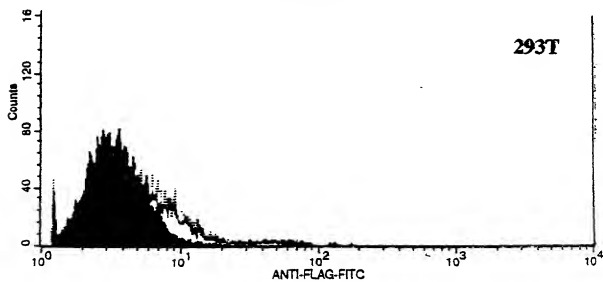
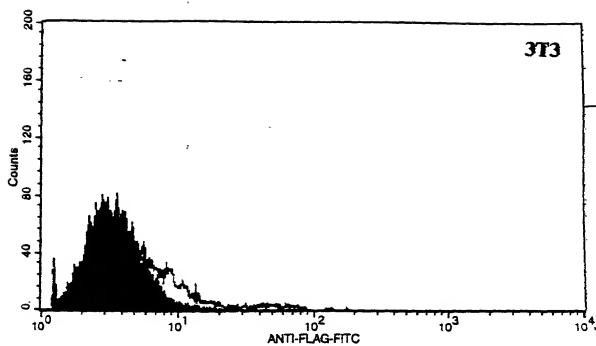


# FACS analysis of G70/April receptor binding



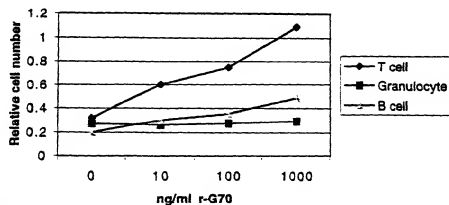
Y04750-85152860

FIGURE 5B





**The effect of r-G70/April on human peripheral blood B cell, T cell and Granulocyte**



**Fig. 6**

**The effect of IL-2 and G70 /April on human peripheral T cell proliferation**

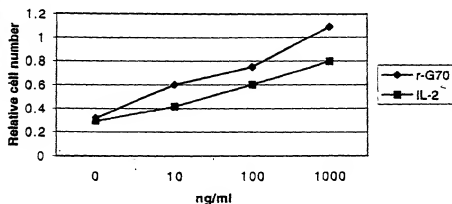


Fig. 7

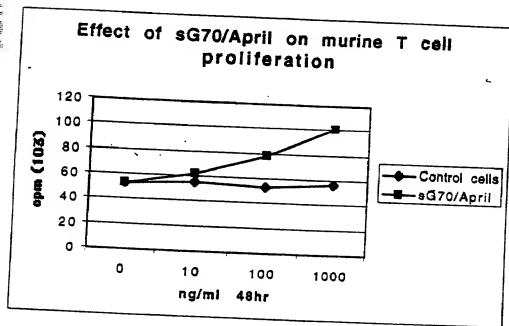
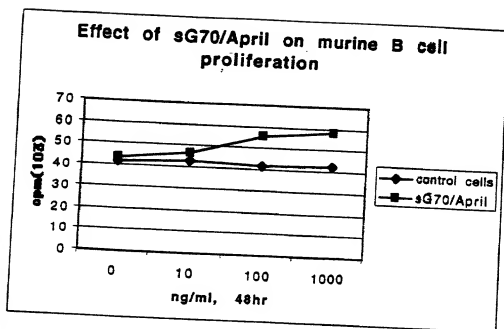
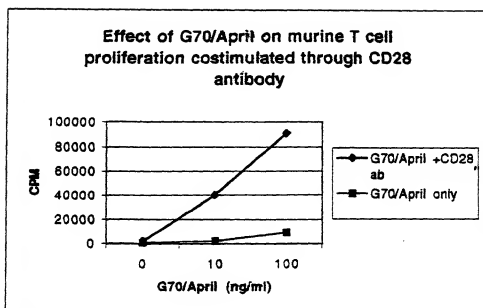
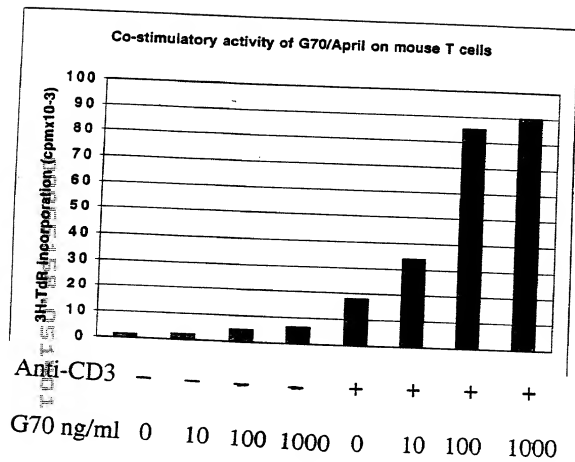


Fig. 8



**Fig. 9**



## Figure 10A

### Human BCMA

Human (SEQ ID NO: 5):

1 MAGQCSQNEY FDSLLHACIP CQLRCSSNTP PLTCQRYCNA  
SVTNSVKGTN

51 AILWTCLGLS LIISLAVFVL MFLLRKISSE PLKDEFKNTG  
SGLLGMANID

101 LEKSRTGDEI ILPRGLETV EECTCEDCIK SKPKVSDHC  
FPLPAMEEGA

151 TILVTTKTND YCKSLPAALS ATEIEKSISA R

Human (SEQ ID NO: 5):

MAGQCSQ NEYFDSLLHA CIPCQLRCSS NTPPLTCQRY CNASVTNSVK  
GTNA ILWTCL GLSLIISLAV FVLMFLLRKI SSEPLKDEFK NTGSGLLGMA  
NIDLEKSRTG DEIILPRGLE YTVEECTCED CIKSKPKVDS DHCFLPAME  
EGATILVTTK TNDYCKSLPA ALSATEIEKS ISAR

hBCMA's extracellular domain (SEQ ID NO: 6):

MAGQCSQ NEYFDSLLHA CIPCQLRCSS NTPPLTCQRY CNASVTNSVK  
GTNA

hBCMA's cysteine-rich consensus region (SEQ ID NO: 7):

CSQ NEYFDSLLHA CIPCQLRCSS NTPPLTCQRY C

hBCMA's transmembrane region (SEQ ID NO: 8):

ILWTCL GLSLIISLAV FVLMF

## Figure 10B

huBCMA-Fc (SEQ ID NO: 9):

MAGQCSQNEYFDSLLHACIPCQLRCSNTPPLTCQRYCNASVTNSVKGTNA  
GGGGGDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDV  
SHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNG  
KEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCL  
VKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQ  
GNVFSCSVMEALHNHYTQKSLSLSPGK\*

muBCMA-Fc (SEQ ID NO: 10):

MAQQCFHSEYFDSLLHACKPCHLRCSNPPATCQPYCDPSVTSSVKGSYTG  
GGGGGDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS  
HEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGK  
EYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRDELTKNQVSLTCLV  
KGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQ  
GNVFSCSVMEALHNHYTQKSLSLSPGK\*

0955158-051401

# **Figure 11** **Alignment of human BCMA amino acid sequence and** **murine BCMA amino acid sequence**

murine BCMA amino acid sequence Length: 185 (SEQ ID NO: 11):

```

1  MAQQCFHSEY FDSLLHACKP CHLRCSNPPA TCQPYCDPSV TSSVKGYTYT
51 LWIFLGLTLV LSLALFTISF LLRKMNPEAL KDEPQSPGQL DGSQAQDKAD
101 TELTRIRAGD DRIFPRSLEY TVEECTCEDC VKSKPKGDS D HFFPLPAMEE
151 GATILVTTKT GDYGKSSVPT ALQSVMGMEK PTHTR
  
```

alignment of human BCMA amino acid sequence and murine BCMA amino acid sequence.

```

Query:      4  MAGQCSQNEYFDSLLHACIPQLRCSSNTFPLTCQRYCNASVTNSVKGTNAILWTCLGLS 63
             MA QC +EYFDSLLHAC PC LRCS+ PP TCQ IC+ SVT+SVKGT +LW LGL+
Sbjct:      1  MAQQCFHSEYFDSLLHACKPCHLRCSN--FPATCQPYCDPSVTSSVKGYTYTLWIFLGLT 58

Query:      64  LIISLAVFVLMFLLRKISSEPLKDEFKNTG----SGLLGMANIDLEKSRTGDEIILPRGL 119
             L++SLA+F + FLLRK++ E LKDE ++ G S L A+ +L + R GD+ I PR L
Sbjct:      59  LVLSLALFTISFLLRKMNPEALKDEPQSPGQLDGSQAQDKADTELTRIRAGDDRIFFPSL 118

Query:      120 EYTVVEECTCEDCIKSKPKVDSHCFPLPAMEEGATILVTTKTNDYCKS-LPAAL-SATEI 177
             EYTVVEECTCEDC+KSKPK DSDH FPLPAMEEGATILVTTKT DY KS +P AL S +
Sbjct:      119 EYTVVEECTCEDCVKSKPKGDSHFFPLPAMEEGATILVTTKTGDYGKSSVPTALQSVMG 178

Query:      178 EKSISAR 184
             EK R
Sbjct:      179 EKPTHTR 185
  
```

0085150.001401

## Figure 12A

### Human TACI

huTACI (SEQ ID NO: 14).

```

1  MSGLGRSRRG GRSRVDQEER FPQGLWTGVA MRSCPEEQYW DPLLGTCTMSC
    51  KTICNHQSQR TCAAFCRSL S CRKEQGKFYD HLLRDCISCA SICGQHPKQC
    101  AYFCENKLRS PVNLPELRR QRSGEVENNS DNSGRYQGLE HRGSEASPAL
    151  PGLKLSADQV ALVYSTLGLC LCAVLCCFLV AVACFLKKRG DPCSCQPRSR
    201  PRQSPAKSSQ DHAMEAGSPV STSPEPVETC SFCFPECRAP TQESAVTPGT
    251  PDPTCAGR WGCHTRTTVLQP CPHIPDSGLG IVCVPAQEGG PGA
  
```

```

MSGLGRSRRGGRSRVDQEERFPQGLWTGVAMRSCPEEQYWDPLLGTCTMSC
KTICNHQSQR TCAAFCRSLSCRKEQGKFYDHLLRDCISCASICGQHPKQC
AYFCENKLRS PVNLPELRRQRSGEVENNSDNSGRYQGLEHRGSEASPAL
PGLKLSADQVALVYSTLGLCLCAVLCCFLVAVACFLKKRGDPCSCQPRSR
PRQSPAKSSQDHAMEAGSPVSTSPEPVETCSFCFPECRAP TQESAVTPGT
PDPTCAGR WGCHTRTTVLQPCPHIPDSGLGIVCVPAQEGGPGA
  
```

huTACI's extracellular domain (SEQ ID NO: 15):

```

1  MSGLGRSRRG GRSRVDQEER FPQGLWTGVA MRSCPEEQYW DPLLGTCTMSC
    51  KTICNHQSQR TCAAFCRSL S CRKEQGKFYD HLLRDCISCA SICGQHPKQC
    101  AYFCENKLRS PVNLPELRR QRSGEVENNS DNSGRYQGLE HRGSEASPAL
    151  PGLKLSADQV ALVYST
  
```

0985153.051401



## Figure 12B

huTACI's cysteine-rich consensus region (SEQ ID NO: 16):

CPEEQYWDPLLGTMCSCKTICNHQSQR TCAAFC and  
CRKEQGKFYDHLLRDCISCASICGQHPKQCA YFC

transmembrane region (SEQ ID NO: 17):

LGLCLCAVLCCFLVAVACFL

hTACI-Fc (SEQ ID NO: 18):

1 MSGLGRSRRG GRSRVDQEER FPQGLWTGVA MRSCPEEQYW DPLLGTMCSC  
51 KTICNHQSQR TCAAFCSRSL CRKEQGKFYD HLLRDCISCA SICGQHPKQC  
101 AYFCENKLRS FVNLPPELRR QRSGEVENNS DNSGRVQGLE HRGSEASPAL  
151 PGLKLSADQV ALVYSGGGGG DKTHTCPPCP APELLGGPSV FLFPKPCKDT  
201 LMISRTPEVT CUVVDVSHED PEVKFNWYVD GVEVHNAKTK PREEQYNSTY  
251 RVVSVLTVLH QDWLNGKEYK CKVSNKALPA PIEKTISKAK GQPREPQVYT  
301 LPPSRDELTK NQVSLTCLVK GFYPSDIAVE WESNGQPENN YKTPPVLDLS  
351 DGSFFLYSKL TVDKSRWQQG NVFSCSVMHE ALHNHYTQKS LSLSPGK\*

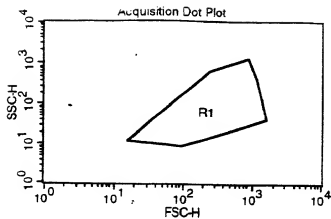
**Figure 13**  
**Alignment of cysteine rich extracellular regions of human**  
**TACI and human BCMA.**

```

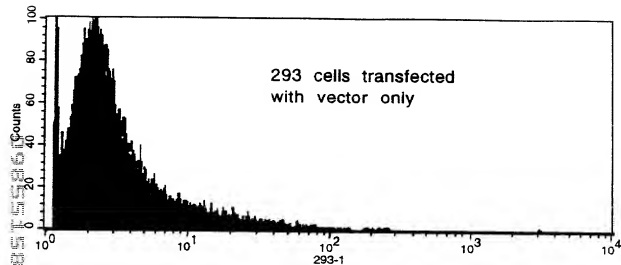
34 CPEEQYWDPLLGTCTMCKTICNHQS.QRTCAAFCRSLSCRKEQKGYDHL 82
   | : : | . | | | | . | . | . | . | . | . | . | . | . | :
8  CSQNEYFDSSLHACIPCLRCSSNTPPLTCQRYCNASVTNSVKGT..NAI 55
      83 LRDCISCASI 92
      | | | : . |
      56 LWTCLGLSLI 65

```

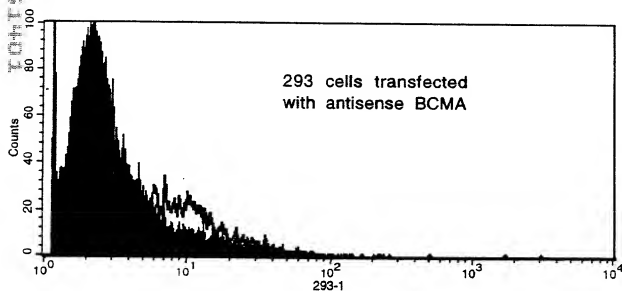
0005150-051401



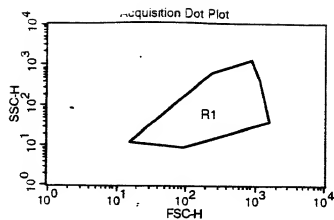
**Fig.14**



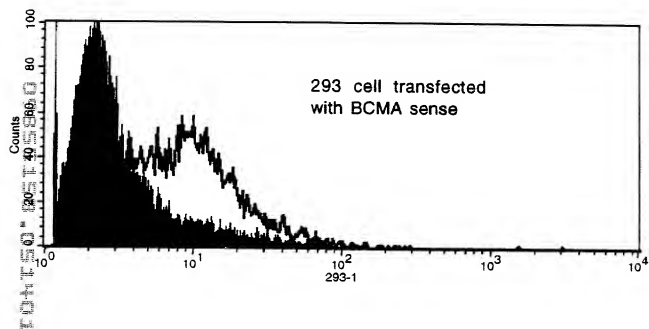
**A.**



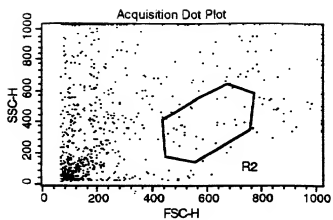
**B.**



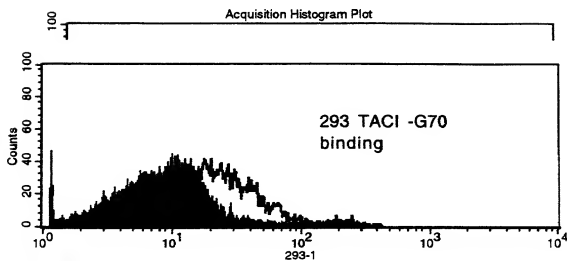
**Fig.14**



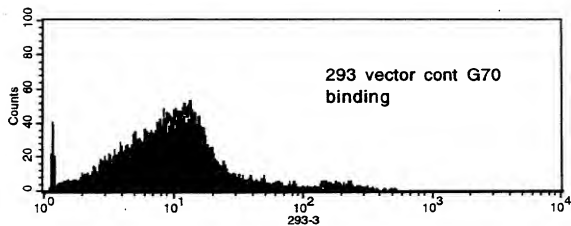
**C.**



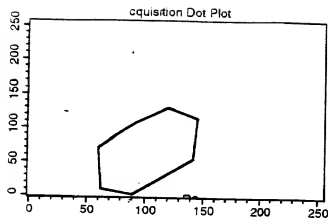
**Fig. 15**



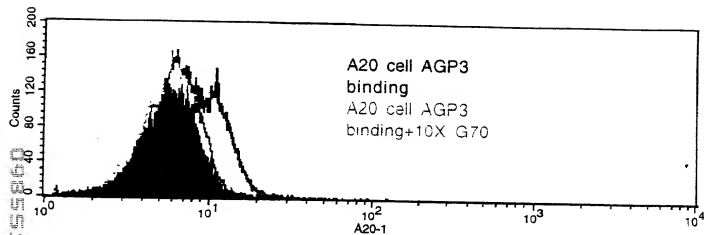
**A.**



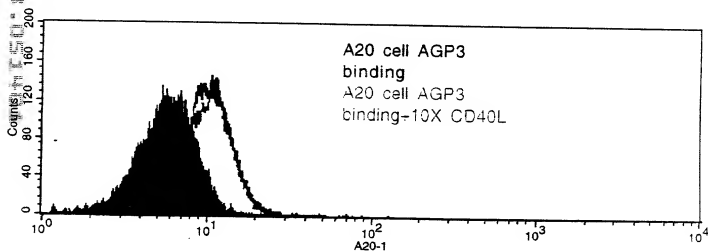
**B.**



**Fig. 16**



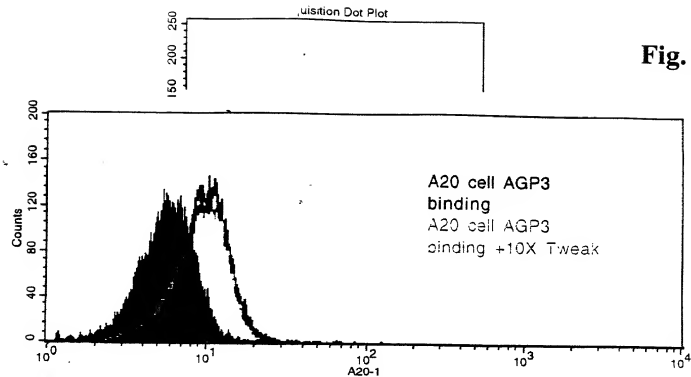
**A.**



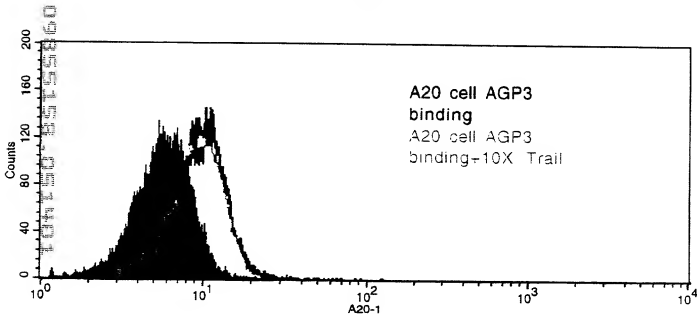
**B.**

Experiment 4-3-2000

**Fig. 16**



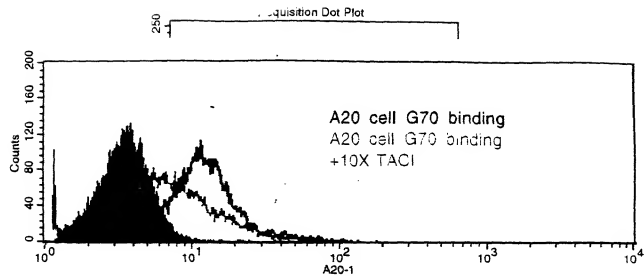
**C.**



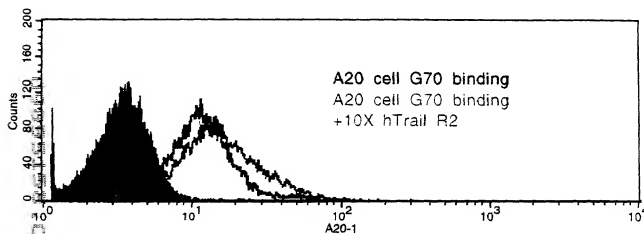
**D.**

Experiment 4-3-2000

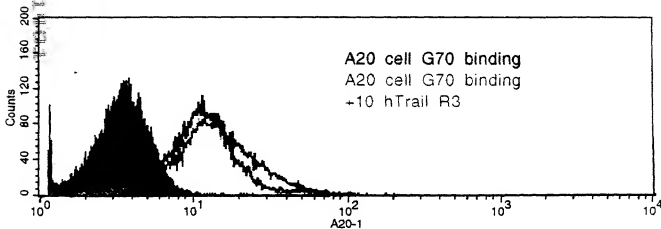
Fig.17



A.



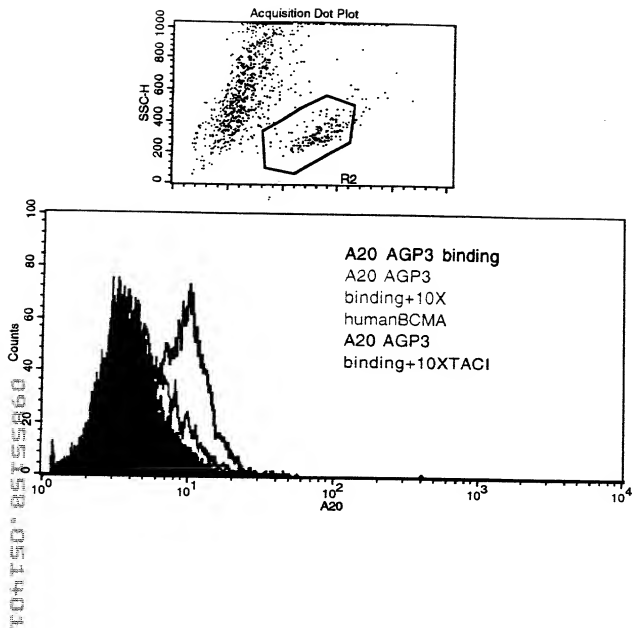
B.



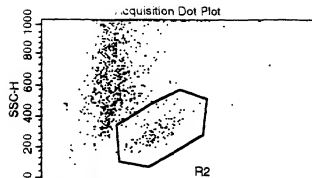
C.

Experiment  
4-11-2000

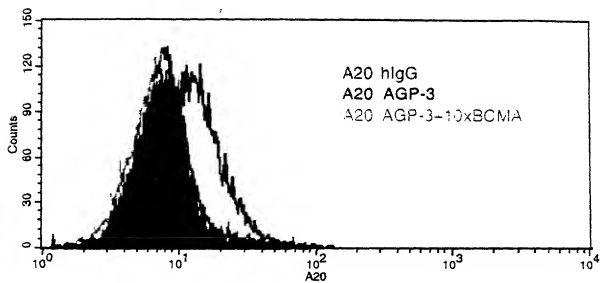




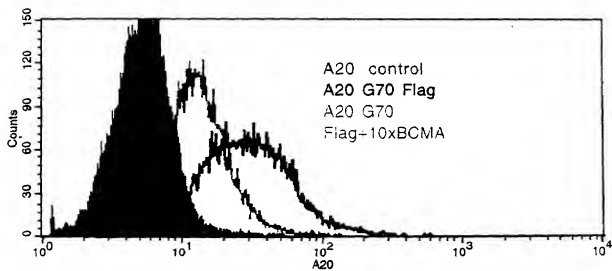
**Fig.18**



**Fig.19**



**A.**



**B.**

Fig.20

